# The MUSES CN Rover and Asteroid Exploration Mission

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Abstract
NASA and Japan's Institute of Space and Astronautical Science (ISAS) have agreed to cooperate on the first mission to collect samples from the surface of an asteroid and return them to Earth for in-depth study. The MUSES-C mission will be launched on a Japanese MV launch vehicle in Jully 2002 from Kagoshima Space Center, Japan, toward a touchdown on the asteroid 1989ML in October 2003. A NASA/JPL-provided miniature rover will conduct in-situ measurements on the surface.

With a mass of about 1kg, the rover experiment will be a direct descendant of the technology used to build the Sojourner rover. The rover will carry three science instruments: a visible imaging camera, a near-infrared point spectrometer and an alpha X ray spectrometer. The solar-powered rover will move around the surface of 1989ML collecting imagery data which are complimentary to the spacecraft investigation. The imaging system will be capable of making surface texture, composition, and morphology measurements at resolutions better than 1 mm. The rover will transmit this data to the spacecraft for relay back to Earth. Due to the microgravity environment on 1989ML, the rover has been designed to right itself in case it flips over. Solar panels on all sides of the rover will ensure that enough power will always be available to the rover to activate the motors needed to turn over. Posable struts will allow the rover to position its chassis such that the camera can be pointed straight down at the surface or straight up at the sky. The presentation will describe the mission, scientific objectives and current state of the rover in detail.

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